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DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,776

Applicant(s)

LUDTKE ET AL.

Examiner

Ives Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/3/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/3, 8/8/05, 6/22/4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 2,3 and 8 are objected to because of the following informalities: In claims 2 and 3, it recites: 0.001aboutby, 0.01aboutby, it would be proper to recite: 0.001 about by, 0.01 about by.

In claim 8, it recites: 6carbon atoms, it would be proper to recite: 6 carbon atoms..
Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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(1). **Claims 1-3, 5-6, 13-15, 18, 22-27 and 30-36** are rejected under 35 U.S.C. 102(e) as being anticipated by Zhao et al (US006638998B2).

(2). Zhao et al disclose a aqueous coating composition and method of preparing that uses certain polyoxyalkylene phosphate surfactants to increase the compatibility of inorganic pigments with the latex. The aqueous coating composition includes at least one polyoxyalkylene phosphate surfactant having the following structure:

$(\text{HO})_{3-m} - \text{P}(\text{O}) - [- (\text{O} - \text{R}^1)_n - \text{O} - \text{R}^2]_m$ - **formula (I)** where m is 1 or 2, n is integer from 1 to 100, R^1 is C_1 to C_5 alkyl, $\text{O}-\text{R}^2$ is a linear or branched alkyl alcohol residue where R^2 has the structure $\text{C}_p\text{H}_{2p+1}$, and p is an integer from 1 to 30 (Abstract). The at least one latex polymer is preferably selected from the group consisting of pure acrylics, styrene acrylics, vinyl acrylics and acrylated ethylene vinyl acetate copolymers (Col. 2, line 36-41). The surfactant can be incorporated in the latex by using it to produce the latex or it can be added separately from the latex to the aqueous coating composition. The aqueous coating composition can further include at least one anti-freezing agent and one more additives selected from the group consisting of plasticizers, drying retarders, dispersants, surfactants or wetting agents, rheology modifiers, defoamers, thickeners, coalescing agents, biocides, mildewcides, colorants, waxes, perfumes and co-solvents (Col. 2, line 41-50). These additives are typically present in the aqueous coating composition in an amount from 0 to 15 wt% (Col. 6, line 30-33). The surfactant is typically present in the aqueous coating composition in an amount from greater than 0 to about 4 wt% based on the polymer weight (Col. 5, line 7-9). Typically the aqueous coating composition includes 10 to 85 wt% water (Col. 6, line 39-42). The latex polymer is preferably presents in the aqueous coating composition in an amount from about 5 to about 60 wt% (Col. 6, line 7-9).

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Typically, the surfactant is either used to produce the latex polymer dispersion or is mixed with the latex polymer dispersion prior to mixing the inorganic pigment with the surfactant and the latex polymer to produce the aqueous coating composition. Alternatively, the at least one polyoxyalkylene phosphate surfactant can be mixed with at least one inorganic pigment in slurry form and the resultant mixture then mixed with the latex polymer dispersion. The additives can be added in any suitable order to either the surfactant, the latex polymer, the inorganic pigment, or combinations thereof, to provide these additives in aqueous coating composition (Col. 7, line 3-16). The aqueous coating composition is a stable fluid that can be applied to a wide variety of materials such as, for example, paper, wood, metal, glass, plastics, plaster, and roofing substrates or to previously painted, primed, undercoated, worn, or weathered substrates (Col. 8, line 8-18). Examples 4 – 6 are demonstrated to use the mixture of monoester and diester of oxyalkylene phosphate surfactant.

(3). As to the organophosphate surfactant comprising anionizable phosphate group and a hydrophobe in the **independent claim 1**, Zhao et al disclose the formula (I) in the paragraph (2) including a ionizable phosphate group and a hydrophobe.

As to aqueous coating composition is free of fluorochemical surfactant and poly(oxy-1,2-ethanediyl), α -(nonylphenyl)- ω -hydroxy-phosphate having 6 moles of ethoxylation per mole of nonylphenyl group in the **independent claim 1**, Zhao et al do not disclose any fluorochemical surfactant in the patentee's teaching. The formula (I) of phosphate surfactant disclosed by Zhao et al in the paragraph (2) is free of poly(oxy-1,2-ethanediyl), α -(nonylphenyl)- ω -hydroxy-

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phosphate having 6 moles of ethoxylation per mole of nonylphenyl group as illustrated in the patentee's examples 4-6.

As to the limitation of **dependent claim 6**, Zhao et al disclose the phosphate surfactants is unsubstituted alkyl having 1 to 40 carbon atoms in the Examples 4-6.

As to the limitation of **dependent claim 23**, Zhao et al do not disclose zinc metal compound or complex.

As to the film-forming polymer in an aqueous coating composition in **independent claim 13**, Zhao et al disclose the latex paint polymer which would form a film on the substrates.

As to the method of polishing a surface in the **dependent claims 31 and 36**, Zhao et al disclose the measurement for gloss of the coating film on the substrates in Table 1 (Col. 15).

As to the components of ionic crosslinking agents up to 3 wt%, surfactant other than organophosphate surfactant up to 2 wt%, polymeric emulsifying agent up to 40 wt%, coalescing agent up to 35 wt%, wax up to 40 wt% in the dependent claim 22, Zhao et al disclose the total additives content to be 0 to 15 wt%. The distribution for each additive as claimed within the total range of 0 to 15 wt% would fulfill the limitation as claimed. Furthermore, these additives can be ZERO content.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(4). **Claims 4 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Pierre et al (US006673854B2).

As to the limitation of **dependent claim 4**, Zhao et al **do not teach** the phosphate surfactant is neutralized to be 10 to 100 wt% (partial, fully).

However, Pierre et al **teach** the phosphate-functional surfactant can be used in either the un-neutralized, partially neutralized, or fully neutralized form (Col. 3, line 58-60).

The advantage of using neutralized form of phosphate surfactant is for better stability and scrub resistance (Col. 3, line 60-61).

Therefore, it would have been obvious at time the invention was made to use the neutralized form of phosphate-functional surfactant of Pierre et al in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages.

As to the limitation of **dependent claim 9**, Zhao et al **do not teach** up to 50 equivalents of alkoxylation in the patentee's phosphate surfactant.

However, Pierre et al **teach** the phosphate-functional surfactant containing 4 to 70 ethylene oxide units (Col. 3, line 34-35).

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The advantage of using the phosphate surfactant having 4 to 70 ethylene oxide units is to offer environmental advantages (Col. 3, line 34-38).

Therefore, it would have been obvious at time the invention was made to use the 4 to 70 ethylene oxide units of phosphate-functional surfactant of Pierre et al in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages.

(5). **Claims 7- 8 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Kroll et al (US003654206).

As to the limitation of **dependent claim 7 and 8**, Zhao et al **do not teach** the phosphate surfactant containing the hydrophobe either substituted or unsubstituted arylalkyl of 6 carbon atoms.

However, Kroll et al **teach** the formula of monoester, diester of ethoxylated phosphoric acid having radical group selected from straight or branched alkyl radicals containing from 4 to 16 carbon atoms, aryl radicals and aralkyl radicals (Col. 2, line 9-31).

The advantage of using phosphate surfactant with aryl or aryl-alky having 6 carbons hydrophobe group disclosed by formula of Kroll et al is to provide the leveling function in the floor polishes (Abstract).

Therefore, it would have been obvious at time the invention was made to use the phosphate surfactant containing the hydrophobe either substituted or unsubstituted arylalkyl of 6 carbon atoms taught by Kroll et al in the aqueous composition of Zhao et al in order to obtain the aforementioned advantages.

As to the limitation of **dependent claim 19**, Zhao et al **teach** of using at least a phosphate surfactant in the aqueous coating composition (Abstract, line 7-8) and additional surfactants (Col. 6, line 25-26).

Zhao et al **do not teach** the wetting agent, leveling agent selected from anionic surfactants, cationic surfactants, nonionic surfactants.

However, Kroll et al **teach** the alkoxyated phosphate esters to be a leveling agent.

Therefore, it would have been obvious at time the invention was made to add leveling agent of alkoxyated phosphate esters of Kroll et al in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantage, in view of the chemical structural similarities disclosed by Zhao et al, and by Kroll et al, the alkoxyated phosphate esters of Kroll et al is also a species of phosphate surfactant disclosed by Zhao et al, one ordinary skill in the art would expect all species work well for genus, motivated by a reasonable expectation of success. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

(6). **Claims 10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Inoue et al (EP 1352644A1).

As to the limitations of **dependent claims 10-12**, Zhao et al **do not teach** the content of monoester, diester in the phosphate surfactant.

However, Inoue et al **teach** the phosphate surfactant containing a mixture, a phosphate monoester (a1) and a phosphate diester (a2) at an (a1)/(a2) weight ratio ranging from 85/15 to 50/50 (57).

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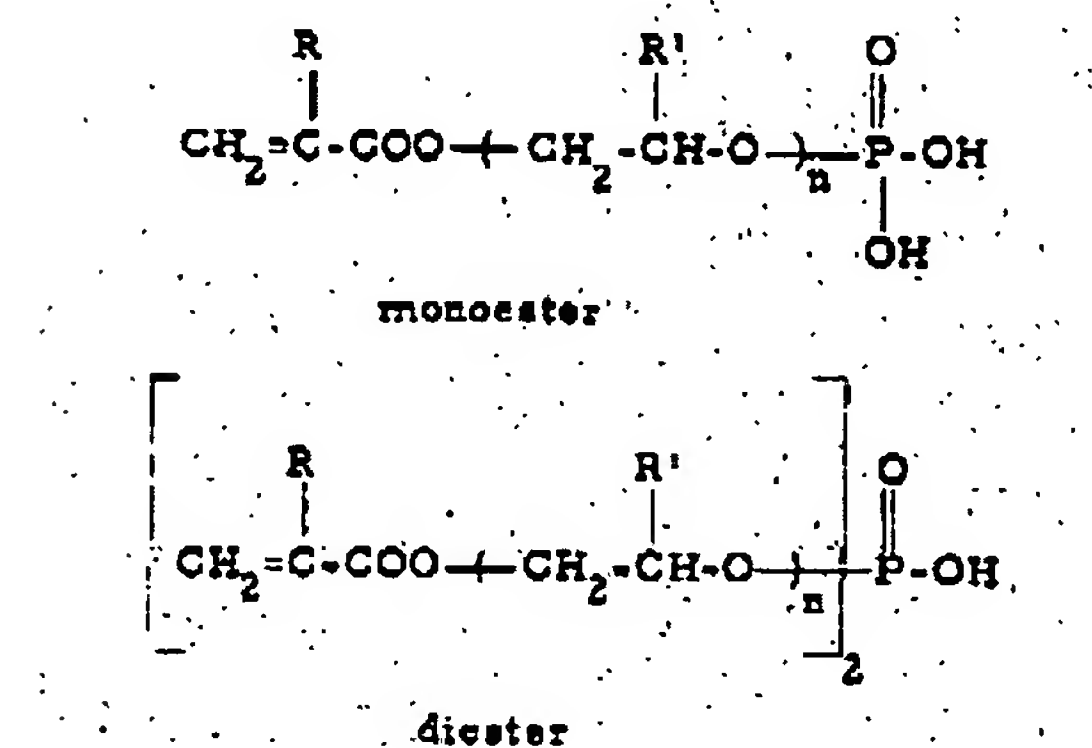
The advantage of using this weight ratio is due to the viewpoint of ease of mixing ([0011]).

Therefore, it would have been obvious at time the invention was made to use the phosphate surfactant mixture of monoester, diester of phosphate surfactant taught by Inoue et al in the aqueous composition of Zhao et al in order to obtain the aforementioned advantages.

(7). **Claims 16 and 28-29** is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Steckler (US003855364).

As to the limitation of **dependent claim 16**, Zhao et al do not teach polymerized phosphate-containing monomers.

However, Steckler teaches the polymerizable compositions containing mixtures of primary (monoester) and secondary (diester) phosphate esters of hydroxyalkyl acrylates and hydroxylalkyl methacrylates by the following general formulae:



wherein R is either hydrogen or methyl group, R' is either hydrogen or alkyl of from 1 to 22 carbon atoms or mixtures thereof and n is a positive integer of from 1 to 3.

The advantages of using these polymerizable phosphate-containing monomers is the phosphated reaction mixture as such being subjected to homopolymerization or copolymerization

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with other vinyl monomers to yield a new and useful class of polymer, in the preparation of flame-retardant lattices and binders for non-woven fabrics, in fibers to impart fire-retardant and anti-static properties (Col.2, line 37-46).

Therefore, it would have been obvious at time the invention was made to use the polymerizable monoester, diester of phosphate esters of hydroxyalkyl acrylates and hydroxyalkyl methacrylates taught by Steckler in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages.

As to the limitation of **independent claim 28**, the disclosure of Zhao et al and Steckler is incorporated herein by reference. The most subject matters of aqueous coating composition to be free of fluorochemical surfactant in applicant's claim 28 has been recited in the applicant's claim 1, and has been discussed in the paragraph (3). The most subject matter of film-forming polymer comprising a polymerized phosphate monomers in the applicant's claim 28 has been recited in the applicant's claim 16, and has been discussed in the paragraph (7).

As to the limitation of **dependent claim 29**, the polymerizable phosphate-containing monomer disclosed by Steckler is phosphate esters of polyethylene glycol monomethacrylate.

(8). **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Kielbania et al (US005945473A) and Hawley's Condensed Chemical Dictionary, 11th Ed, page 944.

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As to the limitation of **dependent claim 17**, Zhao et al **teach** using at least one acrylic polymer (Col. 2, line 54). Zhao et al **do not teach** using a urethane polymer or a mixture of urethane and acrylic, vinyl or vinyl/acrylic emulsion polymer.

However, Kielbania et al **teach** a water-dispersible polyurethane and a polymer prepared from an ethylenically unsaturated monomer and at least one additional polymer (Abstract, line 1-5).

In view of the teaching of Hawley's Condensed Chemical Dictionary, page 944, the advantages of using polyurethane polymer or mixture of it is due to the properties of excellent hardness, gloss, flexibility, abrasion resistance, and adhesion.

Therefore, it would have been obvious at time the invention was made to include the polyurethane polymer of Kielbania et al in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages.

(9). **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Baker et al (US006388002B1).

As to the limitation of **dependent claim 20**, Zhao et al **do not teach** using metal or metal complexes crosslinking agent in the patentee's aqueous coating composition.

However, Baker et al **teach** a metal complex crosslinking agent (Abstract, line 8-10).

The advantages of using metal crosslinking agent is to cause the components of coating composition to react and to make the coating more resistance to water penetration (Col. 1, line 57-64).

Therefore, it would have been obvious at time the invention was made to add the metal or metal complex crosslinking agent of Baker et al in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages.

(10). **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US006638998B2) in view of Hornibrook (US002918391).

As to the limitation of **dependent claim 21**, Zhao et al **teach** using the coalescing additive in the patentee's aqueous coating composition (Col. 6, line 27). Zhao et al **do not teach** using coalescing agent of organic solvents in the patentee's aqueous coating composition.

However, Hornibrook **teaches** an organic solvent coalescing agent (Col. 3, line 17-25).

The advantages of using organic solvent coalescing agent is to facilitate coalescing when the composition is dried (Col. 3, line 17-25).

Therefore, it would have been obvious at time the invention was made to use the organic solvent coalescing agent of Hornibrook in the aqueous coating composition of Zhao et al in order to obtain the aforementioned advantages. Moreover, the coalescing agent of Zhao et al is genus, the organic solvent coalescing agent of Hornibrook is species, one ordinary skill in the art would expect all species work well for the genus, motivated by a reasonable expectation of success. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245. The examiner can normally be reached on 8:00 - 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu
Art Unit: 1713
Date: January 1, 2006



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700